

In the Claims:

Please cancel Claims 1-16 without prejudice and amend the remaining Claims as follows:

1. (canceled) A gas turbine engine combustor can assembly comprising:

a combustor can downstream of a pre-mixer;

said pre-mixer having a pre-mixer upstream end, a pre-mixer downstream end and a pre-mixer flowpath therebetween, a plurality of circumferentially spaced apart swirling vanes disposed across said pre-mixer flowpath between said upstream and downstream ends, and a primary fuel injection means for injecting fuel into said pre-mixer flowpath;

said combustor can having a combustion chamber surrounded by an annular combustor liner disposed in supply flow communication with said pre-mixer;

an annular trapped dual vortex cavity located at said upstream end of said combustor liner and defined between an annular aft wall, an annular forward wall, and a circular radially outer wall formed therebetween;

a cavity opening at a radially inner end of said cavity spaced apart from said radially outer wall and extending between said aft wall and said forward wall;

air injection first holes in said forward wall and air injection second holes in said aft wall, said air injection first and second holes spaced radially apart; and

fuel injection holes in at least one of said forward and aft walls.

2. (canceled) A combustor can assembly as claimed in claim 1, further comprising angled film cooling apertures disposed through said aft wall, said forward wall, said and outer wall.

3. (canceled) A combustor can assembly as claimed in claim 2, further comprising said film cooling apertures through said aft walls are angled radially outwardly, said film cooling apertures through said forward walls are angled radially inwardly in a downstream direction, and said film cooling apertures through said outer wall are angled axially forwardly.

4. (canceled) A combustor can assembly as claimed in claim 2, further comprising said film cooling apertures through said aft walls are angled radially inwardly, said film cooling apertures through said forward walls are angled radially outwardly in a downstream direction, and said film cooling apertures through said outer wall are angled axially aftwardly.

5. (canceled) A combustor can assembly as claimed in claim 2, wherein each of said fuel injection holes is surrounded by a plurality of said air injection second holes and said air injection first holes are singularly arranged in a circumferential row.

6. (canceled) A combustor can assembly as claimed in claim 5, further comprising angled film cooling apertures disposed through said aft wall, said forward wall, said and outer wall.

7. (canceled) A combustor can assembly as claimed in claim 6, further comprising said film cooling apertures through said aft walls are angled radially outwardly, said film cooling apertures through said forward walls are angled radially inwardly in a downstream direction, and said film cooling apertures through said outer wall are angled axially forwardly.

8. (canceled) A combustor can assembly as claimed in claim 6, further comprising said film cooling apertures through said aft walls are angled radially inwardly, said film cooling apertures through said forward walls are angled radially outwardly in a downstream direction, and said film cooling apertures through said outer wall are angled axially aftwardly.

9. (canceled) A combustor can assembly as claimed in claim 1, wherein said primary fuel injection means includes fuel cavities within said swirling vanes, fuel injection holes extending through trailing edges of said swirling vanes from the fuel cavities to said pre-mixer flowpath.

10. (canceled) A combustor can assembly as claimed in claim 9, further comprising angled film cooling apertures disposed through said aft wall, said forward wall, said and outer wall.

11. (canceled) A combustor can assembly as claimed in claim 10, further comprising said film cooling apertures through said aft walls are angled radially outwardly, said film cooling apertures through said forward walls are angled radially inwardly in a downstream direction, and said film cooling apertures through said outer wall are angled axially forwardly.

12. (canceled) A combustor can assembly as claimed in claim 10, further comprising said film cooling apertures through said aft walls are angled radially inwardly, said film cooling apertures through said forward walls are angled radially outwardly in a downstream direction, and said film cooling apertures through said outer wall are angled axially aftwardly.

13. (canceled) A combustor can assembly as claimed in claim 10, wherein each of said fuel injection holes is surrounded by a plurality of said air injection second holes and said air injection first holes are singularly arranged in a circumferential row.

14. (canceled) A combustor can assembly as claimed in claim 13, further comprising angled film cooling apertures disposed through said aft wall, said forward wall, said and outer wall.

15. (canceled) A combustor can assembly as claimed in claim 14, further comprising said film cooling apertures through said aft walls are angled radially outwardly, said film cooling apertures through said forward walls are angled radially inwardly in a downstream direction, and said film cooling apertures through said outer wall are angled axially forwardly.

16. (canceled) A combustor can assembly as claimed in claim 14, further comprising said film cooling apertures through said aft walls are angled radially inwardly, said film cooling apertures through said forward walls are angled radially outwardly in a downstream direction, and said film cooling apertures through said outer wall are angled axially aftwardly.

17. (currently amended) A gas turbine engine combustor can assembly comprising:

a combustor can downstream of a pre-mixer;
said pre-mixer having a pre-mixer upstream end, a pre-
mixer downstream end and a pre-mixer flowpath therebetween, a
plurality of circumferentially spaced apart swirling vanes
disposed across said pre-mixer flowpath between said upstream

and downstream ends, and a primary fuel injection means for injecting fuel into said pre-mixer flowpath;

said swirling vanes disposed across said pre-mixer flowpath defined between an outer flow sleeve and an inner flow sleeve;

said combustor can having a combustion chamber surrounded by an annular combustor liner disposed in supply flow communication with said pre-mixer;

an annular trapped dual vortex cavity located at said upstream end of said combustor liner and defined between an annular aft wall, an annular forward wall, and a circular radially outer wall formed therebetween;

a cavity opening at a radially inner end of said cavity spaced apart from said radially outer wall and extending between said aft wall and said forward wall;

air injection first holes in said forward wall and air injection second holes in said aft wall, said air injection first and second holes spaced radially apart;

fuel injection holes in at least one of said forward and aft walls;

~~A combustor can assembly as claimed in claim 1, further comprising:~~

a reverse flow combustor flowpath including, in downstream serial flow relationship, an aft to forward portion between an outer flow sleeve and said annular combustor liner, a 180 degree bend forward of said vortex cavity, and said pre-mixer flowpath at a downstream end of said combustor flowpath.

~~said swirling vanes 32 disposed across said pre-mixer flowpath defined between an outer flow sleeve and an inner flow sleeve.~~

18. (original) A combustor can assembly as claimed in claim 17, further comprising:

said film cooling apertures through said aft walls are angled radially inwardly,

said film cooling apertures through said forward walls are angled radially outwardly in a downstream direction,

said film cooling apertures through said outer wall are angled axially aftwardly,

said fuel injection holes and said air injection second holes are disposed through said forward wall, and

said air injection first holes are disposed through said aft wall.

19. (original) A combustor can assembly as claimed in claim 18, wherein said primary fuel injection means includes fuel cavities within said swirling vanes, fuel injection holes extending through trailing edges of said swirling vanes from the fuel cavities to said pre-mixer flowpath.

20. (original) A combustor can assembly as claimed in claim 18, further comprising angled film cooling apertures disposed through said aft wall, said forward wall, said and outer wall.

21. (original) A combustor can assembly as claimed in claim 18, wherein each of said fuel injection holes is surrounded by a plurality of said air injection second holes and said air injection first holes are singularly arranged in a circumferential row.

22. (currently amended) A combustor can assembly as claimed in claim 2 18, further comprising a second stage pre-mixing convoluted mixer located between said pre-mixer and said vortex cavity and including circumferentially alternating lobes extending radially inwardly into said pre-mixer flowpath.

23. (original) A combustor can assembly as claimed in claim 22, further comprising angled film cooling apertures disposed through said aft wall, said forward wall, said and outer wall.

24. (original) A combustor can assembly as claimed in claim 23, further comprising:

 said film cooling apertures through said aft walls are angled radially outwardly,

 said film cooling apertures through said forward walls are angled radially inwardly in a downstream direction,

 said film cooling apertures through said outer wall are angled axially forwardly,

 said fuel injection holes and said air injection second holes are disposed through said aft wall, and

 said air injection first holes are disposed through said forward wall.

25. (original) A combustor can assembly as claimed in claim 24, wherein each of said fuel injection holes is surrounded by a plurality of said air injection second holes and said air injection first holes are singularly arranged in a circumferential row.